



Synapse
Energy Economics, Inc.

Peak Time Rebates (PTR) – Ratemaking Issues

MADRI Working Group Meeting

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Key Takeaway Points

1. Regulatory Framework

- The design of PTR and CPP falls under the ratemaking category of rate structure or rate design.
- There is considerable literature and experience with issues associated with rate design.
- Bonbright identified eight criteria of a sound or desirable rate structure.

Key Takeaway Points

2. How is a PTR financed? Is there a subsidy issue?

- In a case where the amount spent on PTRs is not financed 100% by revenues from bidding PTR reductions into PJM, there will be—at a minimum—the appearance of a subsidy by non-participants.
- The question of whether there is a subsidy—and if so, whether that subsidy is reasonable—will have to be determined based on the specific details of that case. (See Bonbright's eight criteria, for example).

Key Takeaway Points

3. How should PTR (& CPP) be designed to maximize demand response (DR) and to ensure reasonable rates for all residential customers?
 - Design and market PTR and CPP to:
 - Maximize opt-in by the segment of residential customers who place a value on responding to those price signals; and
 - Avoid unreasonable subsidization of those price offerings by the remaining residential customers.

1. Regulatory Framework

Bonbright criteria of a sound or desirable rate structure:

- Simplicity, public acceptability, feasibility of application;
- Freedom from controversy over interpretation;
- Effectiveness in yielding total revenue requirements;
- Revenue stability;
- Stability of the rates;
- Fairness of the rates in allocating costs among customers;
- Avoidance of undue discrimination; and
- Economic efficiency.

2. How is a PTR financed? Is there a subsidy issue?

- A PTR provides customers an incentive to reduce their electric use during critical peak periods. (Several PJM utilities define their critical peak periods as 2 p.m. to 7 p.m. on up to 12 days each summer, i.e., a maximum of 60 hours/year.)
- The primary rationale for a PTR is that load reductions during critical peak periods will enable the parties serving those customers to reduce the quantity of generation, transmission, and/or distribution capacity required to serve those customers, and thereby to avoid the long-run marginal cost (LRMC) of that avoided capacity.

2. How is a PTR financed? Is there a subsidy issue?

- If a PTR is financed 100% by revenues from bidding PTR reductions into the PJM RPM, there is no appearance of a subsidy.
- The amount of PJM revenues actually received can be verified ex post and compared to the actual amount spent on PTRs.
- Example: A PTR could be set at \$1.00/kWh on the assumption that it will ultimately be financed by a PJM RPM payment of \$60 per kW-yr, i.e., \$60 returned to participating customers over the 60 critical peak hours. (\$60/ kW-yr equates to an RPM price of \$164 per MW-day.)

2. How is a PTR financed? Is there a subsidy issue?

- If a PTR is **not** financed 100% by revenues from PJM, there is an appearance of a subsidy of participants by non-participants.
- Whether there is a subsidy, and whether it is reasonable, will have to be determined based on the specific details of the case. See Bonbright's criteria.
- For example, is the amount spent on PTRs less than the projected cost of avoided capacity, and of avoided energy (if any)?

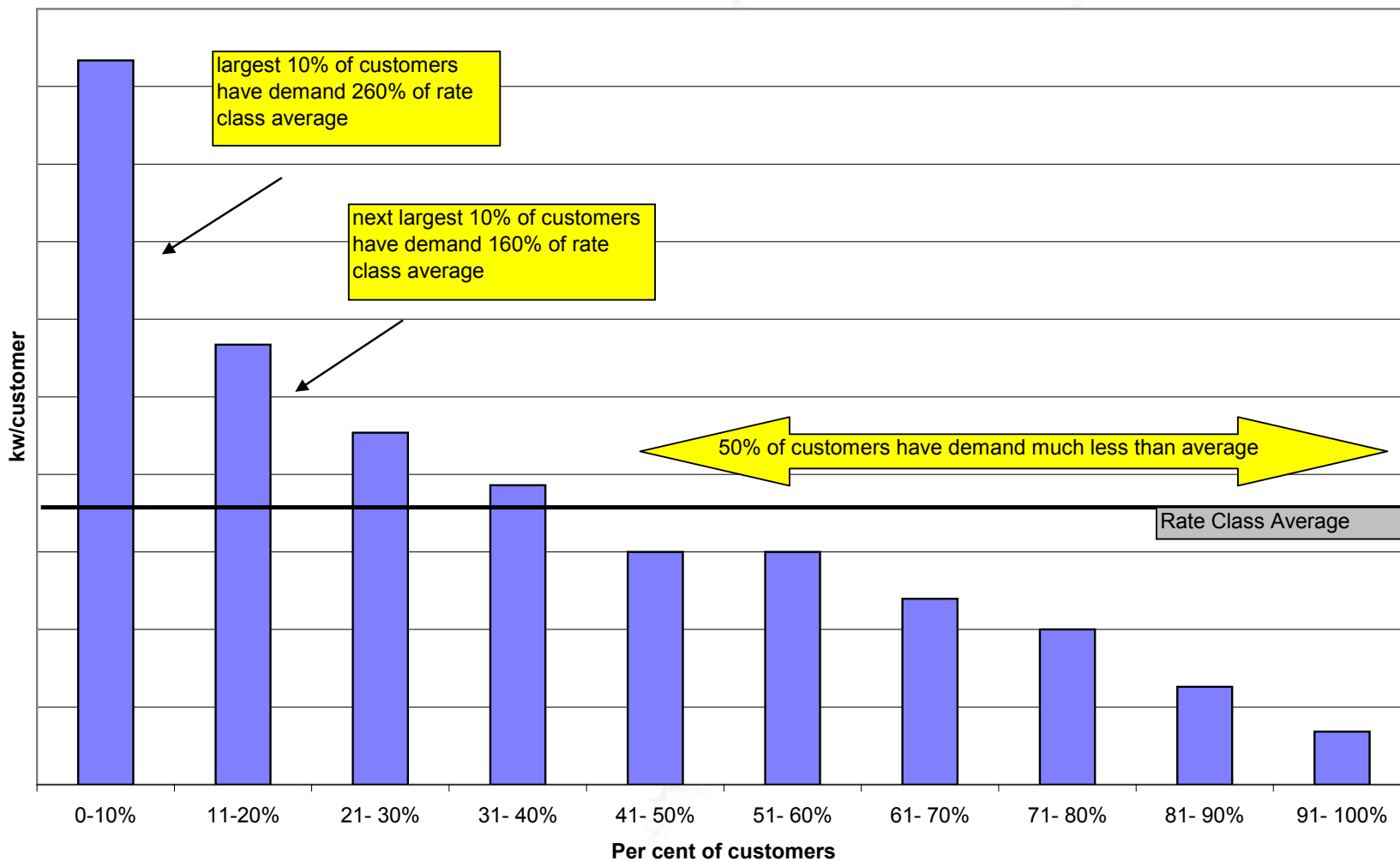
3. Designing PTR and CPP to Maximize DR and Ensure Reasonable Rates

Opt-in versus opt-out. Design and market PTR and CPP to maximize opt-in by the segment of residential customers who place a value on responding to those price signals.

- Various concerns support beginning with an opt-in approach:
 - Do a majority of residential customers in PJM service territories have ability to materially respond to a PTR or CPP?
 - Will a majority of customers who initially respond sustain their participation for enough years to actually avoid capacity?
 - Could an opt-in approach eventually achieve high levels of participation if there is adequate value for participants and adequate marketing?
 - Will consumer protection issues identified by NASUCA, AARP, and others be addressed?

Do a majority of residential customers in PJM have ability to materially respond to a PTR or CPP?

Illustrative distribution of kw/customer in residential rate class (NJ utility)

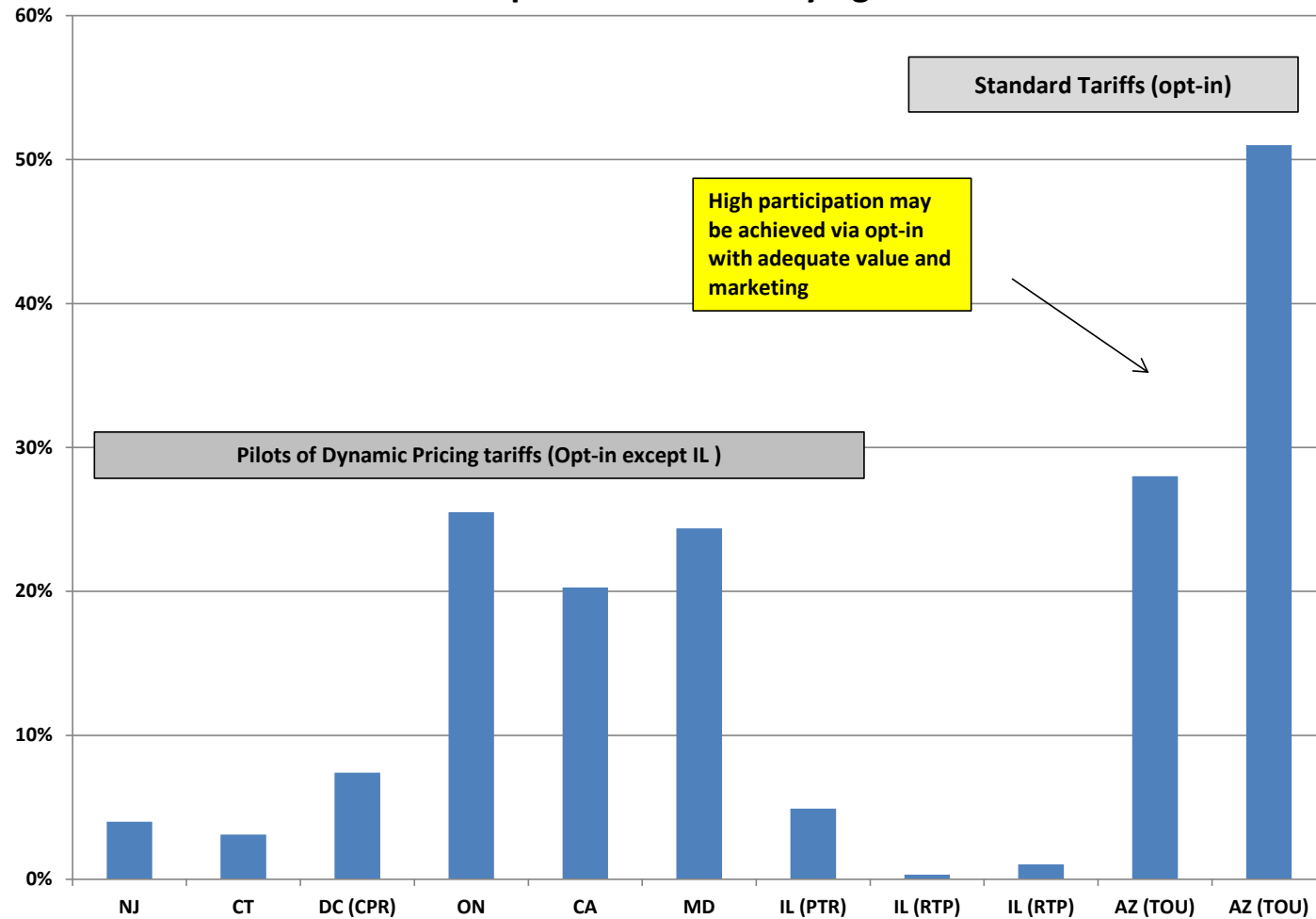


Will a majority of customers who initially respond do so for enough years to actually avoid capacity?

- An average MD residential customer with central air conditioning (CAC) might earn, or save, between \$2 and \$4 in each critical peak period by reducing his or her CAC use during that period (assuming a PTR of \$1.25 /kWh). A residential customer without CAC would have much less ability to reduce demand materially, and thus would earn or save much less per period.
- There is little hard evidence regarding the long-term sustained response to PTR and CPP by participating customers despite over 10 years of studies and installation of 16 million smart meters.

Can opt-in lead to high levels of participation over time if there is adequate value for participants?

Residential Participation in Time Varying Rates - Various States



Further reading

Design and Marketing of PTR

- Illinois. Commonwealth Edison, Customer Application Program pilot.
- Pennsylvania, PECO Energy Company, Initial dynamic pricing and customer acceptance plan (Docket M-2009-2123944).

Consumer Protection Issues

- NASUCA resolution 2009-01 re AMI Principles, June 2009.
- *The Need for Essential Consumer Protections*. AARP, NCLC, NASUCA, Consumers Union, Public Citizen. August 2010.
- *The Impact of Dynamic Pricing on Low-Income Customers: An Analysis of the IEE Whitepaper*. Report to MD OPC. November 2010.

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